

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

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Serial No.: To Be Assigned
(Divisional Application of
Serial No. 10/150,971)

Confirmation No.: To Be Assigned

Filed: September 23, 2003

Docket No.: 6192.0261.D1

Group Art Unit: To Be Assigned

Examiner: To Be Assigned

For: **APPARATUS FOR CUTTING A NON-METALLIC SUBSTRATE USING A
LASER BEAM (AS AMENDED)**

Commissioner for Patents
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Prior to initial examination, please amend the above-identified application as shown below.

AMENDMENTS

IN THE TITLE:

Please change the Title to: "APPARATUS FOR CUTTING A NON-METALLIC
SUBSTRATE USING A LASER BEAM"

IN THE CLAIMS:

Please **CANCEL** claims 1-7.

The following is a complete version of all claims:

1-7. (Cancelled).

8. (Original). An apparatus for cutting a non-metallic substrate, comprising:

a first laser beam generating means that generates a first laser beam for breaking molecular bonds of the non-metallic substrate material so as to heat a cutting path formed on the non-metallic substrate and to form a scribe line having a crack to a desired depth; and

a second laser beam generating means that generates a second laser beam for propagating the crack along a scanning path of the first laser beam in a depth direction of the substrate.

9. (Original). The apparatus of claim 8, wherein the first laser beam has a wavelength having an absorptivity of 90% or more with respect to the non-metallic substrate.

10. (Original). The apparatus of claim 9, wherein the first laser beam is a 4th harmonics YAG laser beam having a wavelength of 266 nm.

11. (Original). The apparatus of claim 8, wherein the second laser beam is a CO₂ laser beam.

12. (Original). The apparatus of claim 8, wherein the first laser beam has a width less than that of the second laser beam.

13. (Original). The apparatus of claim 8, wherein the second laser beam is directly scanned onto the scribe line.